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CACTUS AND SUCCULENT JOURNAL

VOL. XXX NOV.-DEC., 1958 No. 6

FIG. 90. Here's to a Cactus Christmas wherever you are.

CACTUS AND SUCCULENT JOURNAL

Published and owned by the Cactus and Succulent Society of America, Inc., 132 W. Union St., Pasadena, Calif. A magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. North and South America $4.00 per year; foreign $4.00 by money order. Mail application to SCOTT HASELTON, Editor, 132 West Union Street, Pasadena 1, California. *Editorial Staff:* THE ENTIRE SOCIETY. Entered as second Class Matter at Pasadena, Calif., under act of March 3, 1879. Published bi-monthly. We reserve the right to accept or reject advertising or articles sent to this JOURNAL.

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CONTENTS

Editorial	Scott Haselton	162
Desert Flowers Under Glass	Marjorie E. Shields	163
Ariocarpus	Edward F. Anderson	171
Echeveria Edna Spencer and Relatives	H. M. Butterfield	175
Index to Volume XXX	Center section	
Questions and Answers	Harry Johnson	177
Cereusly Speaking	John E. C. Rodgers	177
A Search for Werckleocereus tonduzii	Clarence Kl. Horich	179
Spotlight on Round Robins	Mrs. Gladys H. Panis	180
Proposed Amendment to By-Laws		184
Acanthocereus pentagonus	Marvin Tooley	185
Echinocereus papillosus	Marvin Tooley	186
Spine Chats	Ladislaus Cutak	186

EDITORIAL

This issue completes the 30th year without a break even during two wars. Your editor has decided to continue another 20 years which will give him a world's record in publishing a cactus and succulent magazine! This first 30 years would never have been possible except for the loyalty and support of all of our Society Members. It would be impossible to thank all who have contributed through the Society to the Journal. The regular columns such as Cereusly Speaking, Spine Chats, Round Robins, and Questions and Answers, have been conducted for years by the same people and they are the ones who are responsible for holding our readers. Just as important are the scientific papers, the news items, and the travelogues. Many "old timers" are back with us again and we trust that during the year we will be able to see new writers and contributors. If we continue to grow in membership, as we have during 1958 which was our best year, we must each assume some responsibility in obtaining material for the Journal which is the pulse of the whole world-wide Society.

Notes of appreciation are many, such as the one from Mrs. Jones in Claremont, California, "Harry Johnson's answer to my question on outdoor gardens was a great help and I've had wonderful results in flowering my cacti this summer." Another from Mrs. O'Donnell of New York, "I get great pleasure from the Journal and have made many friends through the Round Robins—thanks to Gladys Panis." We are grateful for the many notes of appreciation and so are our contributors.

In the last Journal (page 155) we asked two questions: 1. Which cactus and succulent flowers the most? 2. Which cactus and succulent is the biggest waste of time? We were surprised that we had only two answers. Ann Sherman of Albuquerque, New Mexico, sent in the following answers: 1. Opuntias and Mesembryanthemums (outdoors), Rebutias and Huernias indoors. 2. Peniocereus greggii (maybe because I'm growing it from seed) and Euphorbia tirucalli. Frank N. Houghton of Elmwood, Mass., sent these answers: 1. Euphorbia splendens (blooms practically continuously) and Zygocactus truncatus (probably a hybrid). 2. Hard to say but probably some of the fast growing Opuntias." It would be interesting to get more replies.

This year we will bind Journals; please follow instructions promptly.

BINDING JOURNALS

This year we will bind Journals as in the past. Mail your magazines complete with indexes to Cactus Journal, 132 West Union Street, Pasadena, California, together with $3.00 for each volume. If any issues are missing please add 75¢ and we will supply them IF available. You may send Vol. 29 and 30 and as many older volumes as you wish at the above rate. The bound Journals will be returned to you postpaid in about 90 days. No orders can be accepted after Dec. 31, 1958.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUESTED BY THE ACT OF CONGRESS OF AUGUST 24, 1912. Of Cactus and Succulent Journal, published bi-monthly at Pasadena, for October, 1950. State of California, County of Los Angeles.

Before me, a notary in and for the State and county aforesaid, personally appeared Scott E. Haselton, who, having been duly sworn according to law, deposes and says that he is the Editor-Publisher of the CACTUS AND SUCCULENT JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Scott E. Haselton, 132 W. Union St., Pasadena, Calif.

2. That the owner is: CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

3. That the known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None. Cactus and Succulent Society is a nonprofit organization and issues no stock.

GLENN O. GRIFFIN, *Notary*
Sept. 18, 1958

CORRECTION

The cover picture on the July-August issue of the Journal should read: Epiphyllum oxypetalum flowering in New Zealand (not Australia).—ED.

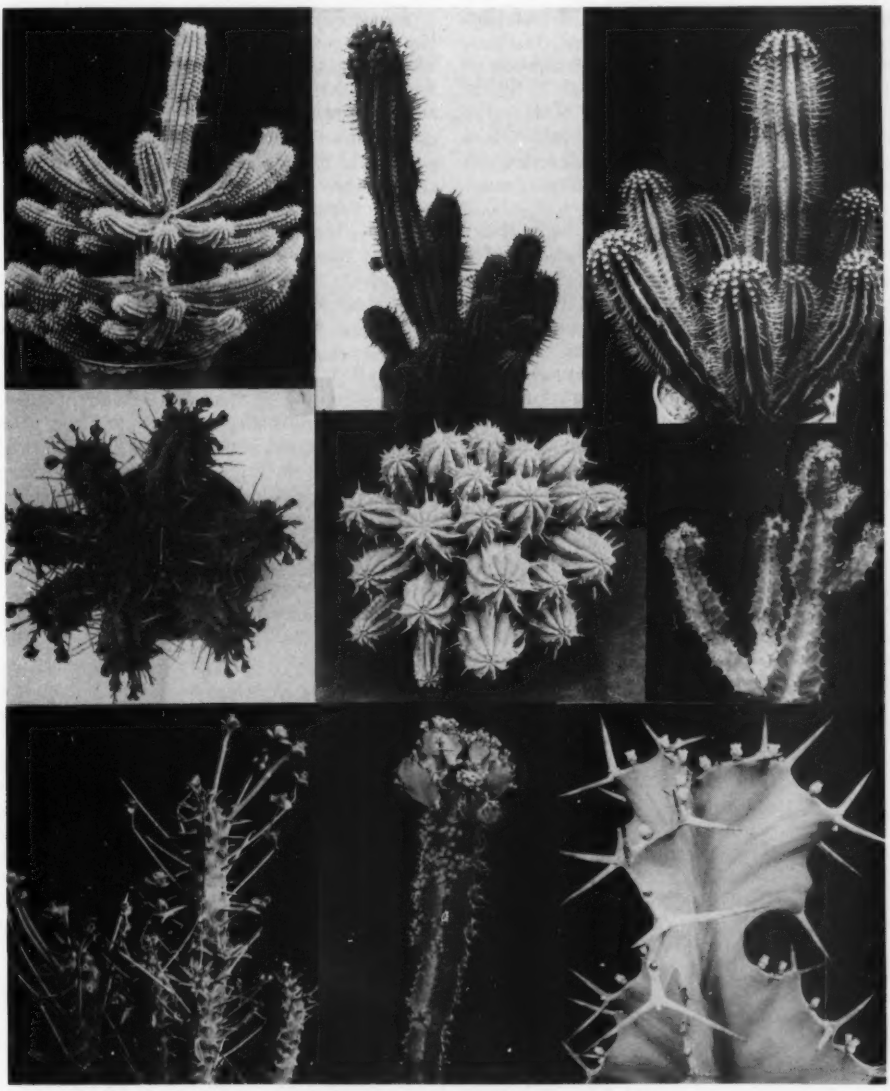


FIG. 91. *Euphorbia mammillaris.* Top center: *E. cereiformis.* Top right: *E. pulvinata.* Center left: *E. fimbriata.* Center: *E. enopla.* Center right: *E. pseudocactus.* Bottom left: E. hybrid. Bottom center: *E. coerulescens.* Bottom right: *E. grandicornis.*

DESERT FLOWERS UNDER GLASS

The story of my experiences and delight in growing and flowering Cacti and Succulents in a small glasshouse in Christchurch, New Zealand

By MARJORIE E. SHIELDS

CHAPTER 9

In the next group along the bench are the Euphorbias from Africa. This is a most interesting collection of plants of easy culture, asking only to be kept dry in winter and for plenty of sunshine and water during summer, plus a well

drained soil. They can be propagated from cuttings which are fairly easily rooted if taken during the summer and set to root in a mixture of equal parts sand, gravel and charcoal. If tied to a stake leaving two or three inches of the stake below the cutting and this end only pushed into the soil mixture with the cutting just resting on the surface then no difficulty should be encountered.

There are many different types of Euphorbias; some of the most spectacular in the form of a medusa's head or like an octopus with a central head from which arms or stems in various thicknesses extend in a complete circle; others are globular like a cactus. Others again are tall growing, usually dull green in colour and have many low ribs with the old flower stalks dried into spines. Then there are the tall ones with large heavy spines in pairs, similar in shape to rose thorns; leafy ones and fleshy ones in endless variety. It would take too long to tell the whole story of these fascinating plants, for there are so many types, or to try to explain in detail the intricate mechanism that constitutes the flower, so the inflorescence will simply be referred to as the "flower" and we will leave it at that, after noting the difference between male and female. For many of these flowers are unisexual, that is of one sex only. The first blooms appear in mid winter (June); there is then a succession of flowers, followed by berries on the female plants, until mid summer (December), although some flower periodically all the year round.

Instead of taking them in their order of flowering it would be better perhaps this time to view them in their respective groups, beginning with these tall growing ones, commonly called "Corn cobs". They resemble corn cobs too, with their low tuberculed ribs and many branches. At the first sign of growth in the spring, on the ends of the stems appear the tiny leaves which soon fall, to be followed by the flowers on short stems. As the blooms on the male plant fade, the short sterile stems remain, hardening to form thin round spines; the same thing happens on the female plants but the flowers produce berries. The largest specimen in this group is E. mammillaris meaning "tuberculate" and giving it the corn cob appearance. This plant has a main stem with many side branches encircling it, the head of each being covered with tiny bright green flowers. You can't find any flowers? See all that light green growth around the ends of the stems? They are the flowers. You are disappointed! Then look at them through the magnifying glass to see how interesting and wonderful they are. It opens up a world of beauty doesn't it! These female flowers will be followed by dull green berries.

Another large one is E. cereiformis, "formed like a Cereus". As well as branching from the base this has side branches with reddish brown flowers adorning them all. These flowers are rather larger than the green ones, so perhaps we can see more clearly how they are formed. Can you see the minute leaves on the very short stalk, and the five tiny petals surrounding the round centre? From out of the centre the style arises and splits into three, which again split into two, showing this to be a female flower. Looked at through the magnifying glass it is a very complicated structure, but it is not necessary for us to go into any further detail. Later we will find a male flower and see wherein it differs. As these flowers fade dozens of maroon berries take their place, glistening in the sun as though dusted with some scintillating powder, and the plant looks even more beautiful than when in flower. This one with the large single stem is E. inconstantia, meaning "fickleness" and is noted for the variations in its flowers. My plant has purple ones. E. heptagona with its "seven corners", is another tall plant with dull purple flowers, followed by bright emerald green berries, very striking looking indeed. These four plants have all produced berries, proving them to be female.

Now look at E. pulvinata. Handsome isn't it, clothed in purple. This plant branches from the base and pictures of it in its natural habitat show it forming huge cushions, hence its name—pulvinata "a cushion". But it has other cushions also. Each stem is cushioned with soft purple blooms sprinkled with gold dust. It looks very beautiful. It has never produced berries, neither has E. tetragona "with four corners", so these green flowers and E. pulvinata's purple ones must be male. E. fimbriata also has male flowers and as the plant is small and nearer the front of the bench it will be easier for us to see wherein they differ. Instead of having a branched stigma protruding from the centre it has a fringe of yellow stamens, with a larger centre opening to accommodate them. They are quite attractive and much more feminine looking than the female flowers. Especially on this plant which is most decorative. The four inch long central stem is encircled near the bottom by seven short, 2 inch long stems evenly spaced, bringing all, including the central one, to the same height. The head of each is bespangled with purplish red flowers and with their bright yellow stamens coming from the glistening centre, almost look as though they are wearing coloured lace frills. The many long purple spines behind the flowers help the illusion. Fimbriata means "fringed" and refers to the fringed or toothed margins of the petals. Another very spiny one is E. submammillaris, "somewhat tuberculed". This is a spiny new

comer to the collection and has yet to flower.

Here are two dwarf ones, E. enopla and E. aggregata. Both have short branches and form mounds. The spines are round, thick and purple on E. aggregata and reddish on E. enopla. Both have red flowers. The former means "clustered" and the latter "armed". The last one in this group is a hybrid. Its many thin branches and ridiculously long flower stalks topped with tiny greenish yellow flowers, together with the very long spines, make it most attractive. These plants hybridise very readily and in a glass house it is almost impossible to get true seedlings, unless the flowers are kept covered before being hand fertilised.

The next group has quite a different appearance with angled stems or branches and stout hard spines in pairs. These spines are not dried flower stems but are part of the stem structure itself and cannot be removed without damaging the plant. The flowers too are different, being bisexual, having both stamens and stigma lobes. There are some handsome plants in this group. E. pseudocactus, "resembling but not a cactus", is one. It was so named because of a supposed resemblance to E. cactus, a native of Southern Arabia, not because it was like a cactus. This plant is five angled, beautifully marked with yellowish green V-shaped markings from each set of spines to the centre of the flattened sides. The main stem is branched and all stems and branches have many constrictions up their lengths, which add to the beauty of this plant. In late winter the buds open into yellow flowers, larger than those already seen and grouped in threes, the top one being a female flower, the two lower ones bisexual. The stems are adorned over the whole top and for a considerable way down the sides

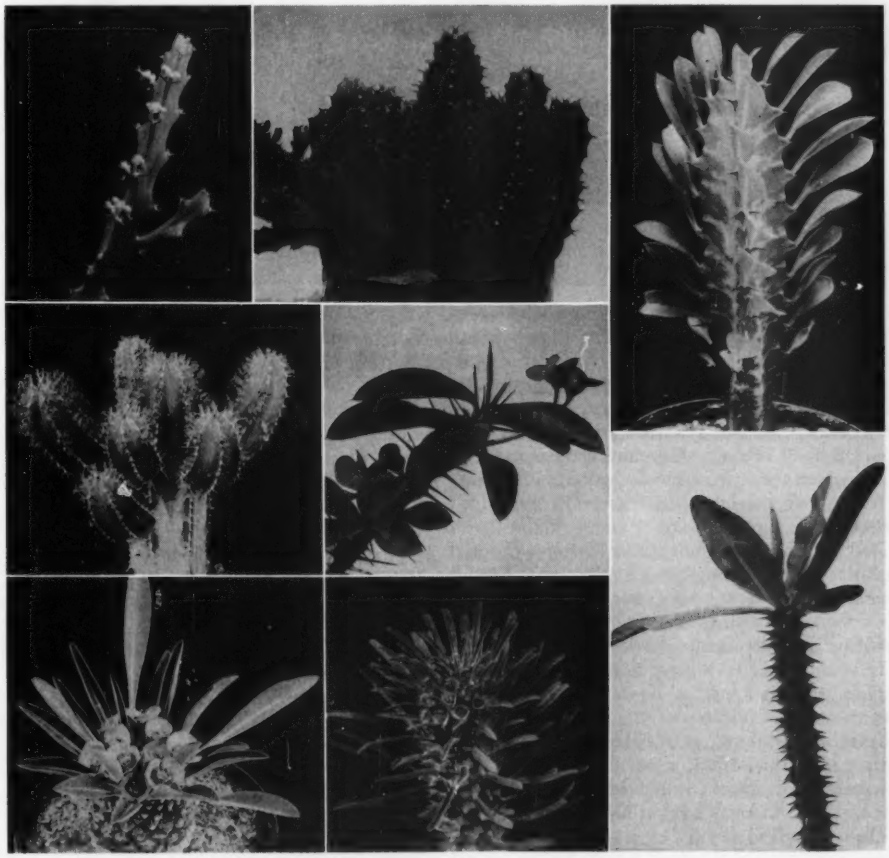


FIG. 92. Top left: *Euphorbia grandidens*. Top center: *E. resinifera*. Top right: *E. hermentiana*. Center left: *E. echinus*. Center: *E. splendens*. Bottom left: *E. bupleurifolia*. Bottom center: *E. clandestina*. Bottom right: *E. bislopii*.

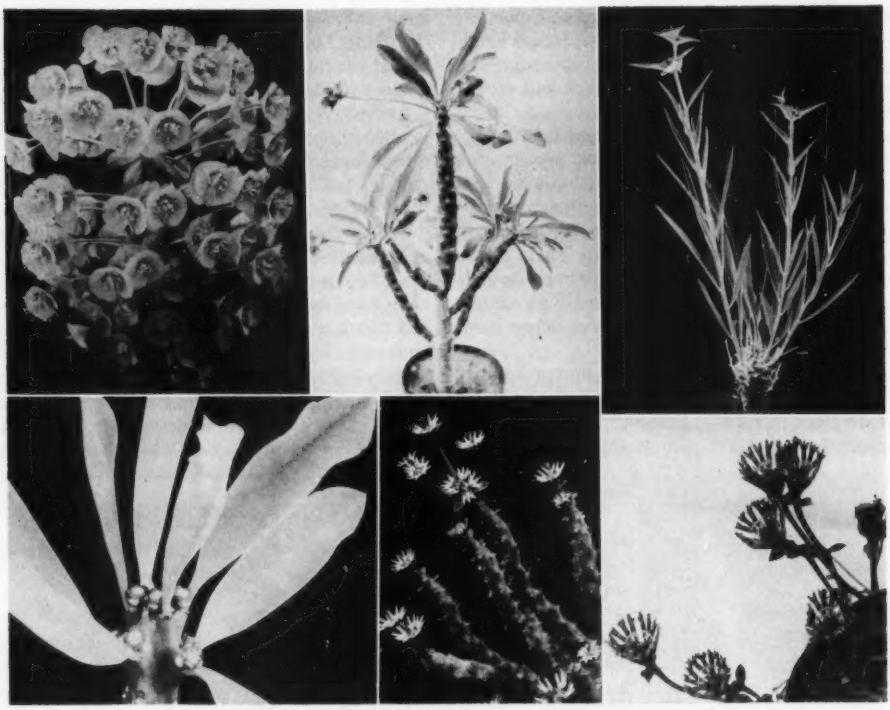


FIG. 93. Top left: *Euphorbia wulfenii*. Top center: *E. bubalina*. Top right: *E. monteiroi*. Bottom left: *E. neriifolia*. Bottom center: *E. ornithopus*. Bottom right: *E. globosa*.

as well. When the flowers fade they are replaced by large three angled yellowish green berries. The bluish green one with the horny band and brown spines in pairs outlining the edges of its ribs is E. coerulescens, and is so called because of its blue colour. It is rather a knobly plant with several small offshoots developing near the top of the main stem. It looks very gay when it trims its ribs with bright yellow flowers, contrasting so well with the blue stem.

But look at E. grandicornis! Isn't it a beautiful plant with its long three angled stem deeply indented, and wide, thick, winged ribs waving this way and that as though seeking the best position for displaying the long cream spines. The name means "large horned" and these spines certainly are large horns. The bright yellow flowers in groups of three arrive in mid winter and brighten up the glasshouse considerably during these bleak months. A large portion of the stem is adorned and though the flowers are bisexual no berries have followed so far.

E. triangularis a tall "triangular" plant with a beautifully marked stem hasn't flowered yet. I have seen this growing outside in a warmer locality than this and it was almost a tree; mine will soon be too large for this small glasshouse. As E. grandidens will also eventually be a tree, I hope it will be some time before that happens, for this one has many long thin graceful four angled branches with deep indentations up the sides and very fine paired spines. The name means "large toothed", referring to the indentations. The small pale yellow flowers appear on new growth and so far no berries have followed.

This one I haven't flowered, though I have had it for some years. It is E. resinifera and should "yield resin". It is not a tall growing plant like the others, but rather forms a low clump with many short four angled branches; with each pair of short spines sitting an a little brown patch to match. The last one belonging to this group is one of the gayest—E. echinus, meaning "a hedgehog". About 8 inches high with a stout central stem and many branches all pointing upwards it looks distinctive with its white horny margins and short white spines. In mid summer when bedecked with tiny bright bronze red flowers and dusted with pollen from the yellow stamens it looks very gay and is one of the most spectacular. Both this one and E.

resinifera come from Morocco, not from South Africa.

Another with three angled stems and paired spines is E. hermentiana, but this differs from the others in that it has leaves as well. Quite large ones up to 2 inches long appear on the edges of the ribs between the pairs of spines, perfectly symmetrical, all pointing upwards. In full leaf it is most spectacular. Also the stem is beautifully mottled in cream. But—no flowers! This plant comes from West Africa.

Two entirely different ones with both leaves and thorns are E. splendens and E. hislopii. These plants are shrubs with round stems and branches clothed with bunches of leaves, large bright red flowers on longish stems and many thorns. On E. splendens these thorns are neither in rows nor in pairs, but are placed haphazardly, close together on both the main stem and the branches; twiggy thorny shoots produce clusters of clear green leaves about 1½ inches long. E. hislopii has a much stouter stem, does not branch so readily and has large thorns in rows up the length of the stem. Leaves 6 inches in length, reminiscent of gum leaves, narrowish, blue-green and margined in red, sprout from the top of the stem, giving the plant the appearance of a small palm tree. The flowers are similar on both plants—two large red bracts enfolding the tiny blossom. These red flowers amongst the green foliage make them very showy plants. E. splendens is commonly known as the "Crown of Thorns", not because, as some people think, it was the plant used for Christ's Crown;—how could it be when He lived in Palestine and Euphorbia splendens was not discovered until the year 1583 in Madagascar! The reason for this name is purely symbolic. The plant that was really used is thought to be a box thorn called Paliurus australis, "Christ's Thorn" used in Palestine for hedges.

The majority of plants seen so far have been tall growing. Now look at E. bupleurifolia, near the front of the bench, the loveliest little gem with a small flower, in shades of green on top of its cone-like body. For this little plant has a cone shaped stem with tubercules, each ending in a leaf scar, pressed flat against its body making it look more than ever like a cone. The leaves are long, narrow and graceful, rather like willow leaves, and the flowers, surrounded by two large green bracts similar to E. splendens' red ones, have stalks nearly 2 inches long. These, together with the leaves, sprout from the centre of the cone. It is so quaint it hardly looks real. E. clandestina is the nearest to it, only in this plant the cone has elongated into a long stem, the tubercules are sharply pointed and do not lie flat against the stem. This plant grows tall, mine is already 21 inches high, while E. bupleurifolia rarely grows to more than 8 inches. The top of the stem is densely covered with long willow-like light green leaves, the stalkless large green flowers hiding at their base. As both these plants are males no berries will follow.

See through the glass out into the garden. There is another Euphorbia with a wonderful display of flowers. This is E. wulfenii, a hardy one, and is just the opposite of E. clandestina, which has a head of leaves hiding the flowers, while E. wulfenii has large heads of light yellowish green flowers which completely hide the small leaves growing in the axils. But below the flower head long narrow leaves clothe the stem almost to ground level. It is most spectacular and is useful for decorative work.

Another leafy one is E. bubalina, the "Buffalo Euphorbia", so called because its native habitat is near the Buffalo River. This is a succulent shrub with many branches and with leaves longer and wider than the others. The flowers are produced on long stems which extend well beyond the leaves. These also are green but often turn russet. It scatters its seed all over the glasshouse. Here is another interesting leafy one. This is E. monteiroi, named after Jaochim John Monteiro, a young Portuguese mining engineer and naturalist who found the plant in southern Angola. This plant also has long narrow blue green willow-like leaves sprouting from the top of a thickened tuberculated stem, from which also the long flowering stems arise. These stems have whorls of smaller leaves at intervals, and in the middle of the top whorl is a short stem with a pair of green sharply pointed leaf-like bracts in the centre of which is the tiny maroon flower. These leaf-like bracts, or possibly they are a pair of true leaves are spotted with maroon and the tiny maroon flowers have a fringe of yellow hairs along the top edge of the petals. From the green centre, also maroon spotted, three stigma lobes arise from a deep maroon base. This flower needs studying under a magnifying glass to get the true details. It is a most interesting and unusual plant and deserves much more study than can be given it here.

The last leafy one does not belong to this group, but as it too is leafy we will study it next. It is E. neriifolia, the "oleander leaved" Euphorbia. Never having seen an oleander, could it be likened to a laurel leaf, as these leaves too are thick, green and glossy? The brick red flowers sit in the axil of the leaf and when the leaves fall in the winter the flowers remain. It looks very quaint to see these little brick red blossoms looking as though they have been stuck on to a bare knobby stump. These flowers are not as large as those we have been looking at with the large

bracts, though they are bigger than some and are very gay. All these leafy plants are deciduous, that is they lose their leaves in the winter when they present a very different appearance. E. splendens and E. hislopii with their bare leafless, thorny branches are hardly recognisable, and an old cabbage stump is all that is left of the glory that once was E. monteiroi!

What quaint, queer, interesting plants these Euphorbias are! There are three here with flowers all built on the same principle but each is a little different, and very different from any we have already seen. They are E. ornithopus, "the bird's foot Euphorbia"; E. tridentata "the three toothed Euphorbia"; and E. globosa, "shaped like a globe". We will look at E. ornithopus first. Even the plant is unusual, the turnip shaped body produces many long finger-like growths, on the ends of which are the quaintest flowers, very difficult to describe. The nearest I can sugguest, is to liken it to a hand. Supposing we had but three fingers, dispensing with the index finger, spread the other three, fold the thumb over the palm of the hand, and you have something like the shape of what we will call for convenience sake, the petal. Five of these odd petals form the flower, with a centre like a round green seed from which the stamens protrude, and then, hanging to one side, like the tassel on a child's cap, is the round ovary, with a three pronged stigma attached; the whole flower measuring only half an inch across. The "hand" portion as well as the fingers is covered with tiny white mosaics making the flower look perfectly white. Looking at a single petal it is understandable why the plant is called "ornithopus"—the bird's foot Euphorbia.

E. tridentata "the three toothed one" has green fingers covered with green mosaics and a white thumb; it is cup shaped, not flat like E. ornithopus. The plant itself also differs, the growth being shorter, more knobby and branching at odd angles. E. globosa is different again. This one is composed of many small globular growths attached to each other somewhat like potatoes with the flower stems growing from the "eyes". The flower too is different as the fingers are cut into three, giving each petal a fringed look. A few green mosaics just below the fringe, a line of white ones where the white "thumb" touches the palm of the "hand", and the fringed petals make this flower quite attractive. If E. ornithopus is flat like a plate and E. tridentata is cup shaped, then E. globosa is like a drinking glass. A fourth one with similar flowers but displayed on the ends of 6 inch long stems held well away from the plant, may be another form of E. globosa, but instead of the little bodies being round these are elongated, making these two plants look quite distinct.

Other queer shaped Euphorbias have Medusa's heads, that is with a central thickened main root flattened at the top, with a crown of radiating branches surrounding the tuberculed centre. They are all spineless and tuberculed, with tiny leaves at the tips of the branches soon falling to give place to the flowers. This is a very large group with but four representatives here. E. muirii, named after Dr. J. Muir is the best specimen with an almost perfect circle of many thin branches. When a seedling, its main stem with a rounded head was so drawn up, with its branches hanging, it looked just like an octopus swimming! Now it has settled into its normal position and is just breaking into flower. During the winter when it turns completely red it looks beautiful. Some of the colour still remains and is enhanced by the tiny red buds which appear at each leaf axil. The crown of the plant too, is gay with both red buds and the fast opening yellow flowers. It will be a picture in a week or two. Here is the cristate form of it, E. muirii cristata, and like the other also looked beautiful during the winter when it took on the appearance of red sea weed. During the summer it reverts to green and resembles some of the lovely mosses we find in our native fern gullies. Full sun spoils it, so this plant is kept in the shade under the bench.

E. marlothiana, named in commemoration of Dr. Rudolf Marloth, has heavier branches, lacks both the colour and daintiness of E. muirii, has fewer branches, but longer leaves on the stem tips. No flowers as yet. E. caput-medusae, "the Head of Medusa" has thicker stems also and is adorned with many light green flowers. Large plants look most arresting, and one of the big problems in the future will be, how these plants are to be housed in a small glasshouse.

E. inermis up on the shelf looks foreign to this group, for it is merely a branch and will never make a head; but its present shape does not prevent it from blooming and the stem is just a smother of sweetly scented tiny startlingly white flowers, as though it has been out in a snow storm. And see, some of the flowers are full of white snow, which in reality is white wool! I'll lift it down so we can see it more closely. Why, look! The pot is becoming filled with plants developing from underneath the soil and there are some perfect little specimens amongst them, plants that will live up to the other names attached to it, E. viperina, and E. serpentina both descriptive names referring to the long viper or snake-like branches. The real name, E. inermis means "the unarmed or defenseless Euphorbia". It is truly named for there is nothing about this

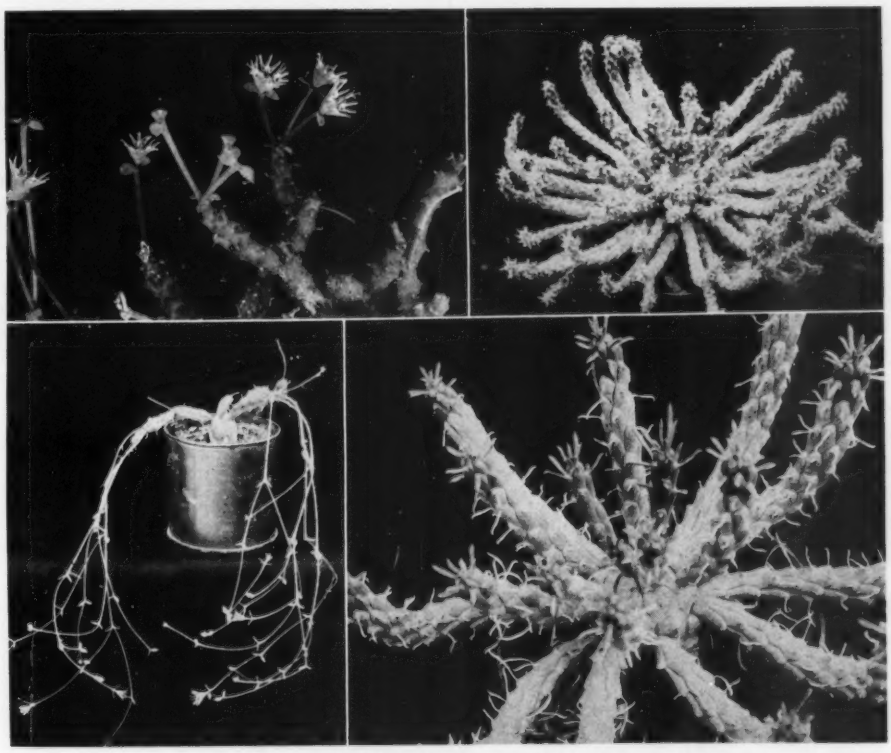


FIG. 94. Top left: *Euphorbia tridentata.* Top right: *E. muirii.* Bottom left: Another form of *E. globosa;* note length of flowering stems. Lower right: *E. marlothiana.*

little plant to harm anyone! Even the animals love it.

This delightful little gem is E. susannae, named after Mrs. Susanna Muir, wife of Dr. John Muir who discovered it in Little Karoo in 1925. No other Euphorbia has similar prominent tubercules elongated into soft, recurved, spine-like protrubances, nor so many ribs or angles. It forms a short, thickened stem, from which off-shoots—they could hardly be called branches—are being produced. The plant is a pale whitish green, and the miniature green flowers are followed by tiny black berries, showing this to be a female plant. It is a decided acquisition to the collection.

The last group is probably the most popular. These are the round fat plum puddings tied up in tartan cloths. There are but four of them, E. obesa, E. symmetrica, E. meloformis and E. valida, all so well known they scarcely need describing, with the exception perhaps of E. symmetrica. Two of the latter sit side by side, but unfortunately they are both female plants. They look rather like the rag balls that are made for baby to play with don't they? But these are made from tartan, one in green and purple and the other lighter green and maroon. I don't suppose any two are quite similar. Until a week or two ago I thought they were E. obesas, but a very knowledgeable friend, visiting the collection, pointed out the difference to me. Had they been Obesas they would not have had little branched flower stalks. E. symmetrica's flowers are in groups of three or four all coming from the one little branched stem, but E. obesa has one flower only to each stem, otherwise there is little difference between them at this stage. As they mature these will grow more wide than long, whereas had they been E. obesas they would grow much taller than they are wide, especially the male plant which towers over the female. Nature's way of seeing to it that the pollen from the stamens of the male flower will fall on the stigma lobes of the squatter female plant below. The flowers on both E. symmetrica and E. obesa are small and on the female plants not very exciting, until the berries appear! They are much prettier on a male plant of E. meloformis, where they are raised on short stems. On this plant the flower stems persist, the little twiggy dried stems

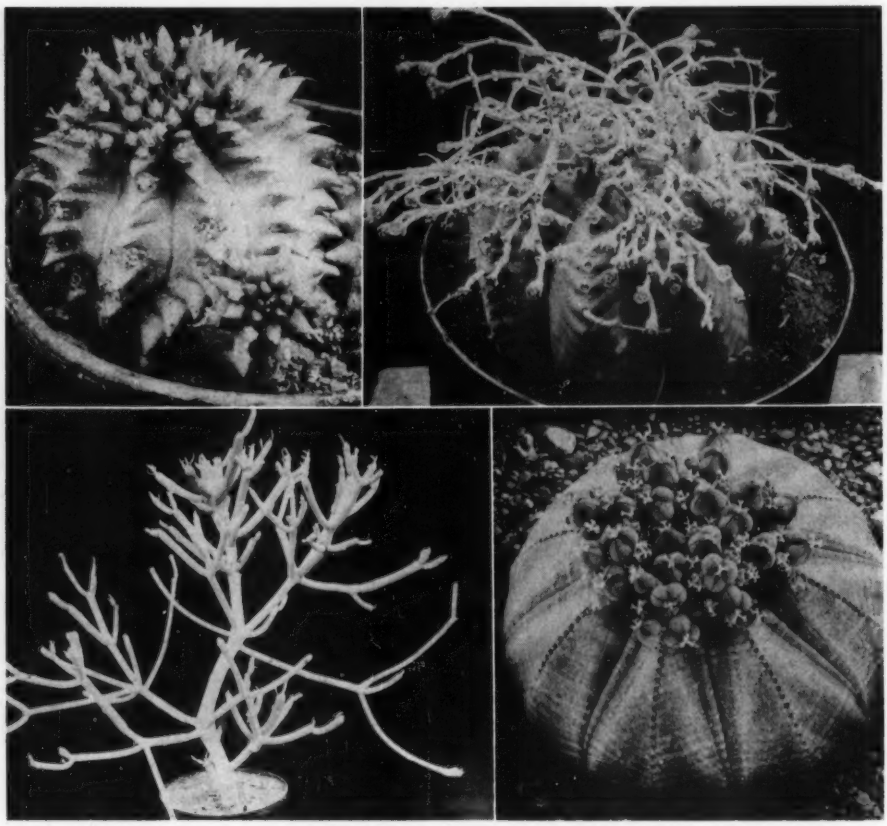


FIG. 95. Top left: *Euphorbia susannae*. Top right: *E. meloformis*. Bottom left: *E. schimperi*. Bottom right: *E. symmetrica*.

looking most decorative. The name means "apple shaped" and is quite descriptive, except that no apple was ever marked with purplish bands like E. meloformis. E. valida meaning "strong" is very similar as a young plant, both having persistent flower stems, but as E. valida matures it will grow twice as tall as it is thick. The purple banding is much heavier too, and the plant body a different shade of green. Both these plants have male flowers.

Lastly one that little resembles a Euphorbia—E. schimperi, a small bare tree—no leaves, no flowers, no thorns or spines, no tubercules, nothing but plain green stems with a few white lines marking the maturer branches. Perhaps that is not quite correct, for once a year for a brief period a pair of almost microscopic leaves adorn the extreme tips of the stems.

Strange, wonderful, fascinating plants, Euphorbias are a study in themselves. A collection with but one or two species is lacking in interest —one or two in each *group* is needed for a true comparison with male, female and bisexual flowers. For full information about the queer flowers a study of the "Succulent Euphorbieae" by White, Dyer and Sloane, should stimulate an interest in these most extraordinary plants.

* * *

MORE LIGHT FOR CACTI

In replay to Mrs. W. C. Swian's problem about giving her cacti enough light for blooming, I have found this solution successful:

I have some fluorescent bulbs set in each shelf of a book-case, so that they shine onto the contents of the shelf. These should be two 40-watt bulbs in each shelf. Small cacti may be placed on these shelves and they will get plenty of light, more than enough to make them flower, so fluorescent light is an excellent substitute for sunlight. For larger cacti, it is harder to fit them on the shelves but the results are equally satisfactory.

EDITH BORIE
103 E. 75 St.,
New York 21, N.Y.

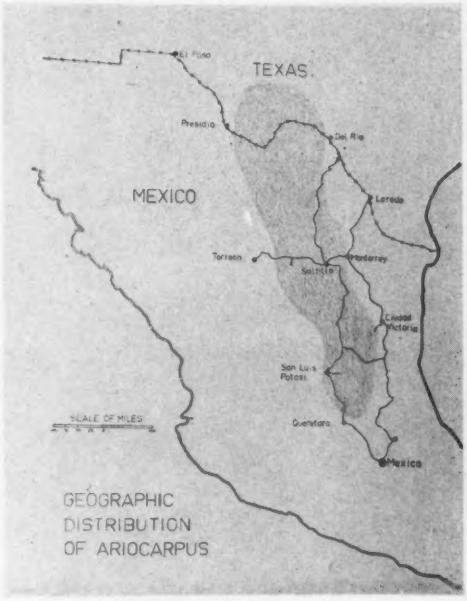
A RECENT FIELD TRIP IN SEARCH OF ARIOCARPUS

By EDWARD F. ANDERSON

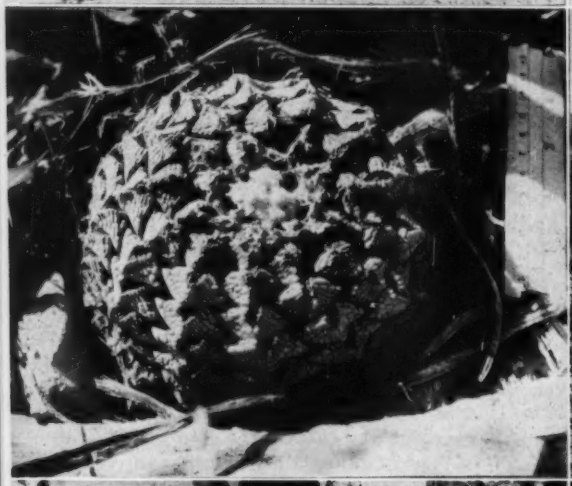
This last summer an extensive trip was made to Texas and Mexico to look for and collect specimens of *Ariocarpus*. This journey was prompted by the necessity to see and learn the habits of these strange and interesting cacti in the field. The trip was actually only a part of a much larger research problem on the taxonomy of the genus *Ariocarpus* being conducted at Pomona College, Claremont, California, on a special Fellowship given by Dr. Gordon A. Alles of Pasadena. The provisions of this generous grant included two summer field trips to Texas and Mexico to gather ecological and geographical data, and to collect specimens for both the University of Mexico and Pomona College. Part of the summer of 1957 was spent in the field in Texas and Mexico in preparation for a more extensive trip which was taken this year.

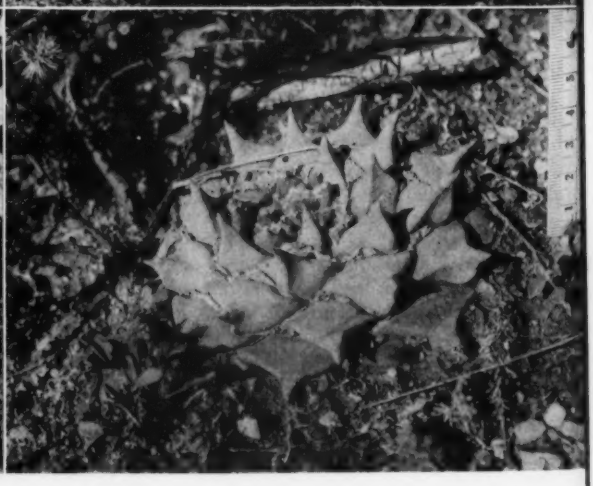
Many questions were found to be unanswered after a careful study of herbarium specimens and literature had been completed. It was felt that only careful field studies and extensive collections could tell the answer to such questions as why there have been forty-one different taxonomic names proposed for probable plants of this genus, and more specifically which of the names are valid. Two other questions it was hoped would be answered by the field trips; what is the exact geographical range of each species, and is the proposed genus *Roseocactus* valid? To facilitate matters for the preliminary research and for purposes of collecting in the field, the proposed genus *Roseocactus* was considered as part of the genus *Ariocarpus*. Determining the validity of *Roseocactus* is a goal of the present research.

The expedition consisted of only one vehicle, a 1958 Ford pick-up truck with a canopy for storing equipment and specimens. David Sands of Glendale, Arizona, assisted during the trip as a research assistant. The actual collecting began in the Big Bend region of Texas where numerous localities had been listed by Dr. Lyman Benson of Pomona College and Dr. Norman H. Boke of the University of Oklahoma. Between Alpine and the park boundary were found areas where there were literally thousands of *Ariocarpus fissuratus*, the "living rock" or "star cactus." Common plants encountered with it on the low limestone hills were *Larrea divaricata*, *Agave lecheguilla*, *Yucca* sp., *Ephedra nevadensis* var. *aspera*, *Dasirylion wheeleri*, *Koeberlinia spinosa*, and *Fouquieria splendens*. There were also many cacti in the area such as *Opuntia engelmannii*, *Mammillaria lasiacantha*, and *Echinocereus pectinatus*. Near the Lajitas junction just outside the park entrance were such cacti as *Echinocactus horizonthalonius*, *Mammillaria* sp., *Echinocereus stramineus*, and *Opuntia* sp., on the flatter ground, and on the limestone hills were specimens of *A. fissuratus*, *Echinocereus pectinatus*, and the interesting yellowish variety of *Epithelantha micromeris*. Numerous localities were found within the park such as south of the park headquarters, on the road to San Vicente, on the hills near Tornillo Creek, and on the hills a little toward Boquillas Canyon. However, these localities were limited only to collectors with permits. Cacti growing with the *Ariocarpus* in these localities were *Coryphantha tuberculosa*, *Echinocactus horizonthalonius*, *Echinocereus pectinatus*, *Echinocereus stramineus*, *Epithelantha micromeris*,



Geographic distribution of *Ariocarpus*





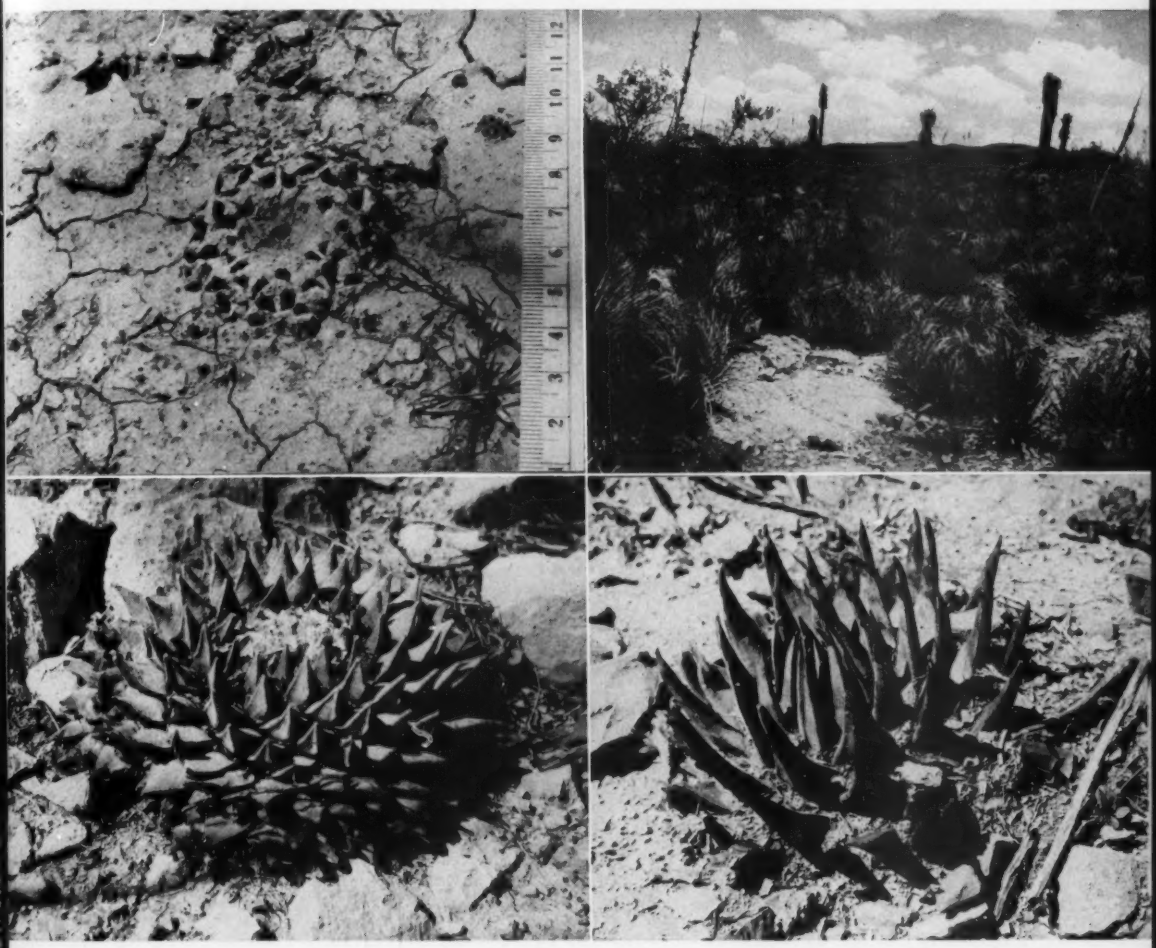


Fig. 97
UPPER LEFT: *Ariocarpus kotschoubeyanus* found near the town of El Huizache in the state of San Lus Potosi, Mexico. UPPER RIGHT: Rich collecting territory near the town of El Huizache. LOWER LEFT: *A. retusus* or possibly a hybrid found near El Huizache. LOWER RIGHT: *A. trigonus* growing in limestone soil in the Valley of Jaumave, Tamaulipas.

Mammillaria lasiacantha, and *Opuntia* sp. North of the park boundary on the road to Marathon is another good location where numerous specimens of *A. fissuratus* were collected. The final collecting point in Texas was near the eastermost limit of the "living rock" which is the Pecos River. It was collected west of the town of Langtry.

Upon crossing the border into Mexico, interest was directed to the beautiful city of Saltillo, Coahuila, around which were numerous localities for collecting *Ariocarpus*

Fig. 96. Page 172.
UPPER LEFT: Locality of *Ariocarpus fissuratus* south of Alpine, Texas, in the Big Bend region. UPPER RIGHT: *A. fissuratus* as found in limestone soil south of Alpine, Texas. CENTER LEFT: *A. fissuratus* var. *lloydii* growing in its natural habitat near Parras, Coahuila, Mexico. CENTER RIGHT: A locality for *A. retusus* in the vicinity of Paso de Carneros, south of Saltillo, Coahuila. LOWER LEFT: *A. retusus* growing south of Saltillo, Coahuila, near Paso de Carneros. LOWER RIGHT: *A. retusus* growing at Paso de Carneros, south of Saltillo, Coahuila.

retusus. One of the best collecting areas was on the unpaved road south of Saltillo on the way to Concepción del Oro near Carneros Pass. There were many fine specimens of *A. retusus* and the proposed species *A. furfuraceus* (its type locality). In this locality were such plants as *Larrea divaricata*, three species of *Agave*, *Mimosa monancistra*, and several different species of *Opuntia*. In this area of Mexico *Ariocarpus* is called "chaute" or "chautle" by the natives and is reported to be sold on the market for medicinal purposes. East of Saltillo on the new superhighway other large and beautiful specimens of *Ariocarpus retusus* were found.

Parras, Coahuila, was the next destination in the trip, and here were found some beautiful specimens of *Ariocarpus fissuratus* var. *lloydii* which is often more robust and lacks the lateral fissures when compared with its Texas counterpart. The locality, recommended by Mrs. Dennis Cowper of Belen, New Mexico, had some specimens which measured 25cm. in diameter and 20cm. high. Only *Neolloydia* and *Opuntia* were found with the *Ariocarpus*, but nearby were some fine specimens of *Echinocactus horizonthalonius* with black spines. Another reported location of this variety of *Ariocarpus* is in the vicinity of Concepción del Oro at Hacienda de Cedros, the type locality. However, poor roads made this area impossible to reach.

Near the small village of El Huizache south of Matehuala were found some of the most interesting and baffling specimens of *Ariocarpus* of the entire trip. These plants had characters unique to only *A. retusus* and characters unique to only *A. trigonus*, and they did not fit any previous descriptions. Some people say they are *A. retusus*, but comparison with the type picture made by Scheidweiler in 1838 shows that they are definitely not the same. Because of the fact that the locality is intermediate between areas where *A. retusus* and *A. trigonus* are found, and because they have many features of each species, it may be that this is a hybrid population. However, only tentative conclusions can be drawn about this at present, and much more study will have to be done. This general area of Mexico was one of the richest in cacti that was found, and had been recommended by the late Howard Gates of Corona, California. Some of the cacti recognized were *Echinocereus pectinatus*, *Echinocactus grusonii*, *Ferocactus pringlei*, *Astrophytum myriostigma*, *Lemaireocereus* sp., *Opuntia* spp., *Lophophora williamsii*, and *Mammillaria* spp. Many of the names were not known, and consequently could not be listed.

The locality at which *Ariocarpus kotschoubeyanus* was collected had been graciously described by Sr. Jerzy Rzedowski of the Universidad Autonoma de San Luis Potosí. It was only a short distance from the area near El Huizache, but only *Lophophora williamsii*, *Opuntia* sp., and *Echinocereus* sp. were found with it. Another locality in the state of Queretaro had been described by the cactus nurserman Willi Wagner, but it was impossible to reach because of damage caused by recent floods.

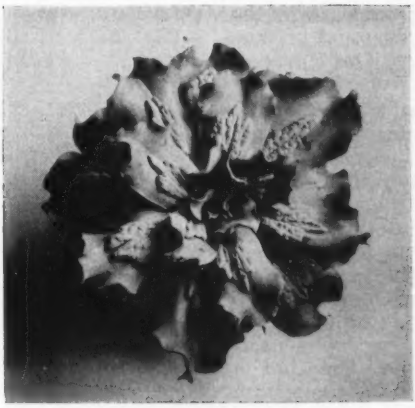
Scheidweiler described the original species of *Ariocarpus* as coming from the area around San Luis Potosí, and here east of the city on the highway to Rio Verde were found numerous specimens. However, many plants had been mutilated, apparently by goats. Many different types of cacti were growing in this same area such as *Mammillaria*, *Neolloydia*, *Ferocactus*, and *Opuntia*.

The search for *Ariocarpus* was briefly interrupted with a visit to the cactus garden and nursery "La Quinta—F. Schmoll," now run by Willi Wagner at Cadereyta des Montes, Queretaro. The road then led to Mexico City where problems connected with the study were discussed with Dudley Gold and Dr. Helia Bravo. Invitations were extended to attend the monthly meeting of the Mexican Cactus and Succulent Society, and the evening proved to be very interesting and enjoyable. Dr. Eizi Matuda was also able to obtain permits to export the specimens that had been collected.

The return trip included only one area for the collecting of *Ariocarpus*, and this was southwest of Ciudad Victoria on the very difficult and badly weathered road to Jaumave in the state of Tamaulipas. Here many beautiful specimens of *Ariocarpus trigonus* were collected and photographed along with *Astrophytum myriostigma*. Here the *Astrophytum* were surprisingly globose. Within the same area were species of *Echinocactus*, *Hamatocactus*, *Mammillaria*, and *Opuntia*. If the roads had been better a great deal more time would have been spent collecting in this interesting and comparatively unexplored valley of Jaumave.

With the completion of the field trip the search for *Ariocarpus* ended for the year, but now it is necessary to study the data and the specimens in the hope that a clearer picture of this fascinating and important genus can be drawn.

POMONA COLLEGE
Claremont, California
Oct. 25, 1958



'Edna Spencer' approx. x 0.3
Photo by author

ECHEVERIA EDNA SPENCER AND RELATIVES

H. M. Butterfield

In the years before 1940, the writer grew a number of seedling echeverias from seed collected in the garden of the late Glenn Davidson in Berkeley. One of the cultigens from which seed was taken was then called *Echeveria* "palmeri" Hort., not the true species or variety. This name has no real standing so the identification of the parent plant is still open to question. It had the rosette habit of growth with leaves somewhat rolled and twisted, as shown in the offspring. There is often a purplish suffusion of color when the plant is grown in the sun. The plants in this strain are very slow to stalk up. At the time that 'Edna Spencer' was found among the seedlings, the writer was not growing *Echeveria gibbiflora*, var. *metallica carunculata* and there is no proof that this carunculated variety in the trade had anything to do with the origin of 'Edna Spencer'. (See picture) The habit of growth is quite different.

When a carunlated seedling was noticed it was set aside and grown outside in 1943. It went through winters in Berkeley very well, but there was little frost. Friends began to notice the unusual caruncles on the plant of rosette type so it was propagated from flower stems and from offsets forced out on the stub left after cutting off the top. The crown roots readily in spring or summer when cut from the stem beneath. Others have cut off leaves and secured plants from leaves. It is also possible to split a plant in half or in quarters to force out offsets. But propagators should know that large echeverias of this sort normally form only two opposite spiral whirls of offsets on the stem and any flower stemps that develop will be in one of these two spiral whirls. The number of plants secured from a stem has varied from one or two up to as many as a dozen on vigorous long stubs. In time these offsets will form aerial roots next to the old stem and can then be removed and rooted well in pots or nursery flats.

Under greenhouse conditions, 'Edna Spencer' remains a soft green and the leaves stand out at a right angle. When the plant is grown in the full sun outside the outer leaves tend to curl downward and some reddish purple develops. Sudden exposure to a hot sun will cause sunburn. The best exhibition plants are grown in large 6-8 inch pots with plenty of light in a greenhouse. It is difficult to grow the best exhibition plants in the open garden, although the cultivar readily stands garden conditions. This is true of many echeverias. 'Edna Spencer' is far hardier or resistant to cold than any of the *Echeveria gibbiflora* group.

Only one reversion from the carunculate form has been notictd in nearly 20 years of culture. One plant lost almost all of the caruncules and still makes a beautiful plant without caruncles. Some indication of caruncles may be found on this mutation during vigorous growth in summer. The slightly rolled and twisted leaves are characteristic of 'Edna Spencer' and the mutation. But the plants will show little or no caruncula-tion when small or sometimes during winter

growth. Caruncles begin to appear with the flush of new growth in spring and become larger as summer advances. This is true of most carunculate forms of echeverias.

Seed from 'Edna Spencer' is only partially fertile and the flower stems are normally weak, not at all like the vigorous flower stems on *E. gibbiflora* strains. No seedlings were obtained in the first two attempts to grow seedlings. The third time only 14 seedlings were obtained but some of these developed caruncles, varying in size and form. Some of the seedlings remained free of any caruncle. In turn, seedlings were grown from the first and second generations, yet some carunculation appeared in each generation, though too few to conform to simple Mendelian fashion. Evidently there is a gene or genes carried in this strain that tend to produce carunculation in some seedlings.

Among seedlings of the third generation that developed caruncles were some greatly different in color and some were not only large plants but one had very large caruncles, though all had the low dosette habit of growth. 'Edna Spencer' may form a few offsets but some of the seedlings form offsets more freely. This ability to form offsets freely is important to the commercial grower. The chances are that 'Edna Spencer' will always remain a collector's item but more hope is held out for a few of the carunculate seedlings. One with only a slightly raised caruncle on the leaves has a beautiful copper color on the outer leaves when grown in the full sun and offsets freely. Tht casual visitor might not notice the canuncles until after passing by the bright-colored leaves. This seedling will be named 'Ednita' and made available gradually to commercial propagators interested in it.

The largest carunculated seedling developed from 'Edna Spencer' has a crown diameter of well over a foot and the caruncles that form in summer are very large. It is too soon to say that this seedling will form very many offsets. Most likely it will be more like 'Edna Spencer' in being a shy producer of offsets. But the very large size is interesting. It has been tentatively named 'Edna's Giant'.

Among the seedlings with caruncles are some with little color. Others with more color have only small caruncles that form in summer. It is not likely that very many of these will be named or propagated, yet all will be watched for a few seasons.

Perhaps the oddest seedling in this group is one which has been named 'Blue Spur'. The plant is not actually crested, but is decidedly proliferate, forming so many branches that it will probably never flower. The cuttings root very readily and when planted in the garden will form a small mound. Some i ndication of a caruncle is found on some leaves and of greater interest is a green spur that seems to separate off of some leaves, being attached only at the base or part way up on the leaf. I believe this spur is in the nature of a caruncle that has become partly spur-shaped and partly separated from the leaf. It is an addity rather than a beautiful plant.

An attempt was made in 1958 to cross 'Edna Spencer' with a selection of *Echeveria gigantea*, 'Marjorie Pogue'. It was hoped that color and possibly crenulation will appear among some of the seedlings. There is even a possibility of getting a seedling with crenulations, more color, and some form of caruncle, although the seedlings do not yet show any indication of a caruncle. Some do show the leaf form and color of 'Edna Spencer'. All persons who have attempted to emasculate the flowers of an echeveria know that the anthers must be removed well in advance of pollen maturity and there is some chance that seedlings resulting from a cross will be dominated by one or the other of the parents. In that case we can hardly expect to find what we are seeking until the second generation and maybe not then. The person who attempts such breeding work should never have to depend on the financial outcome.

In conclusion, let me say that 'Edna Spencer' was named after Mrs. Edna Spencer of Alameda with her permission. She has been a noted dahlia grower in past years and in her 80's can look back to her experience with succulents that may far exceed many of the newcomers. The writer tries to conform to the International Code of Nomenclature for cultivated plants so avoids names with a botanical sound. Mexican girls names will be applied to some of the best seedlings, such as 'Ednita'. But it is expected that carunculation in echeverias will only interest a few people looking for oddities. The many other fine colored and crenulated seedlings will likely enjoy much greater popularity. At another time, some of these crenulated and curled seedling forms will be discussed.

Berkeley, Calif.
Sept. 1958

QUESTIONS and ANSWERS

Conducted by
HARRY JOHNSON
Paramount, Calif.

Question: Black spots appear on the tips of the leaves of my Night Blooming Cereus. In a little while the whole tip of the leaf dies back. What can I do for it?

MISS MARIE DEARSTINE
Zanesville, Ohio

Answer: After the black spots appear nothing much can be done for that particular leaf. However further outbreaks can generally be prevented by giving the plant more sun and a free circulation of air. It seems to be prevalent where the plant is growing in too shady or drafty a location. Plants put out of doors in the summer where they get some sun as under a tree or in a lathhouse seldom develop the disease. Soft, tender growth before the tough outer cuticle is developed is generally where it strikes. The plant you describe is not a true night blooming cereus but is Epiphyllum oxypetalum the so called Queen Cactus. The plants called Night Blooming Cereus are Selenicereus which have angled, more or less spiny stems, and spiny, woolly-haired flower tubes. They never have flat stems.

Question: Our Coryphanthas, Neolloydias and Ferocacti are infested with scale which we cannot rid them of. We have used Volck every week also nicotine. Sometimes a plant dies by rotting. A few of our Thelocacti have hardened and dried up. We have about 850 varieties of cacti though we only started collecting about a year ago last July.

DR. JAIME M. FELICIANO
Philippines

Answer: Scale can be controlled by spraying or dipping in an oil emulsion spray such as Volck. If the infestation is bad the plants should be brushed and washed (an old toothbrush is excellent to dislodge them) and then sprayed. Spray again in about two weeks and once more in another 3 weeks. This should take care of all the eggs as well as old scale. If this does not eradicate them your plants are being reinfected from another source. Wash your benches with kerosene and dust the area with chlordane to control the ants which carry the scale from plant to plant. Oil sprays should not be used too often or your plants will eventually be smothered. Plants "breathe" through stoma, small pores, which control the amount of transpiration. Oil sprays have a tendency to clog these pores to the detriment of the plant.

As regards the loss of the Thelocacti. Most, if not all, Thelocacti come from dry, very warm areas. Your humidity is from 80% to 98%. Probably where the plants come from the humidity is between 10 and 20. Under such conditions the plants probably do not transpire enough to maintain their health. Here, even in California, we have some trouble with our own desert cacti when grown near the coast. The loss of the Rebutias is probably due to your heat. The plants are native to the high alto-plano of the Andes Mts., often at 10,000 ft. to 15,000 ft where the nights are cold. It may be very hot and dry even at these elevations, directly in the sun during the day.

LETTER FROM A YOUNG FANCIER

Dear Friends:

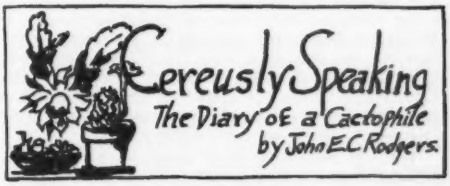
My cacti are doing really well and a lot of them have more than doubled in size. My Tangerine Paramount Hybrid has had five very bright flowers. This and my other Paramounts have been out in the sun all summer and I hope very much they will bloom next summer. They will get as much sun as possible this winter.

My blue cerei (Cereus, Cephalocereus etc.) have put on over 15 inches of growth again this summer. All of the growth is husky and "matured". My older Easter Lily Cacti (Echinopsis sps.) are blooming the best ever this summer. I just hope I can coax my Moon Cereus (Selenicereus and Hylocereus undatus) into flowering soon. I have had them out in the air and sunlight all summer with only enough protection to keep the stems from being scalded. The growth they have put on looks very good.

My two Christmas Cacti which I have had for seven years are now over four feet across and have put out hundreds of new "links" even as big and old as they are. They will surely be beautiful when they bloom this winter. My Espostoa lanata is now 17 inches tall and my Snowball (Pseudoespostoa melanostele) is about 12 inches tall.

ROGER JENSEN
Lake Park, Minn.

Please send your questions to Harry Johnson, Johnson Cactus Gardens, Paramount, California.



For me one of the most difficult things to decide is *what soil to use.* There are so many types of local soils here in Ohio as well as where the plants grow, that what seemed to be perfectly fitted to the plant in one

spot may be totally or partially changed in a few feet (loamy, sandy, clayey, humus, etc.). Yet the type species in most instances lack the variety found in local soils. It seems to me that type species should have this information the same as the German Geo-political Scientists of the early 20th century when they collected plants and data which later gave them information about peoples, plants, soils, etc., more thoroughly than any other except the Japanese when it was necessary in 1939-1945.

I've had many plants stand still for me, neither growing nor dying. The plant seemed to thrive for a time and then began to show certain signs of being unhappy in the same soil I had given them earlier. As far as I could find by the usual tests, the soils were identical. Since I would lose the plant anyhow, I decided to use the exact opposite. This is "shock treatment". This I did with two succulents that were "blacksliders"—Crassula perfoliata and C. teres. I made the soil from leafmold (in our yard are maple, willow, boxelder, elm, hawthorne, which had been so successful with Pereskia and Pereskiopsis) and sand. The sand is coarse, washed and bagged in 100-lb. bags—aquarium supply houses handle it here. It is a silica-iron mixture, light brown in color. It gives the leafmold a rich friable, non-compacting-type that we need. The two plants responded within a month with fine, healthy, new growth. It might be minerals the trees drew up from subsoils to replace the leached-out ones of the topsoil; or it might be the silica-iron sand. Anyhow, it worked. So you have guessed it: I use it for my shy-bloomers, my slow growers, etc. Is the basic soil neutral or acid? Is it slightly acid? Will I replant these in the other type of soil? Yes, if I find they need another shock treatment.

Perhaps these invalids, semi-invalids, etc. are expendable in a collection but I give them the works. Visitors tell me that I grow so many of the succulents that they just can't do anything with Lithops, Pleispolis, Rhipsalis, Euphorbias, Aeoniums, Crassulas, Echeverias, Rebutias, Lobivias, etc. I point out that I do not have all perfect plants and that I keep many that are proving a challenge after 30 years. If the old saying, "You tell me what you eat and I'll tell you what you are", is true, then experiment. If it were easy, I'd not spend any time with it. Beware of Pereskias and Pereskiopsis, they will take over the collection with too much of this. One of my Pereskias grew 10 new shoots 6 feet long this summer. The cristates grow fine, firm growth with fewer normal shoots. Echinopsis from seed are much farther advanced than in my other mixtures and bloom sooner and more profusely.

In July 1957, I ordered from Howard Gates, cuttings of all Pereskias and Pereskiopsis that he had. I got them shortly before his death. These contain some that were named and given collection numbers by him. To you who have no room for them I will say that you don't know what you are missing. They can be left quite dry and suffer very little. They can be coddled and take over everything. What do I do? I store the less picturesque and use the others for leafy variety in the duller months. P. grandifolia, godseffiana, bleo, aculeata, and corrugata, are a few. Shiny green, gold, apricot, red (underside), which are more spectacular than lemon, orange, or grapefruit leaves. Flowers of pink, red, white (off shades), reward one who keeps them warm, moist and comfortable.

They can be used as shade plants in the sand beds, sink the pots and keep trimmed as the smaller plants thrive in the "checker-board shade" given by them. Some grow vine-like, others branch from the base; a few become recumbent and root where they touch; keep at least one around for variety. For those who like the extremely rare, grotesque, etc., I recommend Adenium somaliensis, an oleander-succulent-like flowered plant with vase-like stem. It grows into a low shrub with dark green, white-veined leaves. The flowers are dark pink and cluster at the ends of the slightly twisted, heavy growth. It grows in good light for me beside Cissus guttata. This is another must. A dark green stem wrapped in a thick cloak of onion skin-like covering which cracks open as the plant expands. Another form of light filtration so commonly found in many African succulents. This plant has a large root which stores up moisture. The leaves are notched and drop off when the plant rests.

There are a few others; one is C. bainesii. I planted several seeds three months ago. They were raisin-like, enclosed with pulp. According to Jacobsen in "Cultivation of Succulents", Cissus grow from seeds which often lie dormant for two years before germinating. These seeds which are contained in fleshy fruits, pass through the intestines of animals where they may find some stimulant which makes them germinate more rapidly. I guess I'll have to wait, as mine were not so treated.

I also have a Baobab tree seedling (Addisonia digitata) from Africa. In Africa it is called travelers tree because one can get fresh water from it. Mine has lance-like leaves, a carrot-like tap root and has already branched although it is still quite small. The hand-like leaves do not appear until the tree is quite near the adult stage so I have been told. By now you will think that I have no place to raise anything except my succulents but I've other interests too.

I've been intrigued by the seemingly erratic habits of the Epiphyllum species. Most of the time the buds appear in late July while the hybrids have already bloomed (except E. ackermannii old hybrid). Once in a while E. anguliger will have one or two blooms early in May but most of the time it blooms in late September and early October. This is also true of E. guatamalense and strictum. The Tom MacDougall introductions vary between the two extremes. A-99 in the early spring and A-27 in the early fall. The fall blooming types seem to wait until the heat and heavy rains are through. Most of them I've had prefer root coolness and being kept on the dry side. The buds blast if the plants are moved into the confines of a greenhouse.

We had such a wet year up until September 30, then dry weather. The heavier soils outside became quite sour and plants acted sulky. When the dry weather resumed, the plants showed signs of life. The old type of quickly drained soil could have been best I am sure.

I am trying the cold weather treatment on more of the Southwest, Argentina, and Andean cacti this fall. Last year I left them out until the last of October and the temperature reached 34 degrees several times. Then I stored them in an unheated greenhouse for two more weeks. This last spring I had no fire in the greenhouse after March 28. The blooms on the Rebutias, Lobivias, Echinopsis, Epiphyllums, Rhipsalis, etc., fully repaid me for the worry I had while testing several theories. Although it is not conclusive for some, the Chameocereus sylvestrii and its hybrids are going to stay out until November 8th if at all possible. I look for warm weather until November 15 which may or may not be normal for other years.

JOHN E. RODGERS
1229 Eighth Street
Lorain, Ohio

CORRESPONDENCE WANTED

Fumio Sato, 1274 Chayamachi, Oiso Kanagawa, Japan, would like to correspond with members in Mexico and South America.

FIG. 99. *Werckleocereus tonduzii* on a rock boulder on the Rio Parrita, Costa Rica

A Search for Werckleocereus tonduzii

(Web.) Britt. & Rose*

By CLARENCE KL. HORICH

Born on the stormy heights of Costa Rica's Cordillera de Talamanca, the Parrita River cascades into the dry valleys of the Cantón de Dota. Ocean bound, it winds through the foothills of the Cedrál Mountains and, melting with the Río Pirrís, soon meets the Pacific at the tiny village of Parrita in the province of Puntarenas.

During its course the Río Parrita descends from its headwaters in the sphagnum bogs at 9000 feet, through the icy cloud forests, and then into the dry savannas and jungles of the Pacific lowlands. The typically dry forests of the Pacific slope begin soon after we leave the crest of the Cordillera de Talamanca. In this cool, upper belt of the Río Parrita valley, at the tiny, isolated settlement of Santa Clara del Copey (about 2000 m. alt.), the Cordillera forests give place to the dry vegetation of the Pacific watershed.

The area about El Copey is the home of *Werckleocereus tonduzii* (Web.) Britt. & Rose, a floriferous epiphytic vine endemic to Costa Rica; according to P. C. Standley's "Flora of Costa Rica" it is known solely from this locality.

The road to El Copey is traversable only by jeep, being dangerously narrow, surrounded by gaping canyon ravines and beset with hairpin curves for most of its length, regardless of whether one starts west from Santa María de Dota or east from El Canyón, at the Interamerican Highway.

Heading for the Cordillera, I followed the Río Parrita upriver, starting out at San Marcos de Tarrazú on January 23, 1957, and thus had a good chance to observe the distribution of *W. tonduzii*.

I encountered the first specimens on an old tree at the Parrita shore, some 400 meters west of Santa María de Dota. The village of Santa María borders the temperate zone and there is no doubt that these and several more isolated plants found along the river some 2 km. further east were spread by seed from the center of distribution, which definitely lies in the vicinity of El Copey at a higher altitude and in a much cooler climate.

The species seems rare until about 1 mile west of El Copey. Directly after, however, it becomes relatively frequent in old trees and, occasionally, on huge rock boulders along the river. The majority of plants found were near El Copey, being most common on the creek *quebradas* and forest stands of the Parrita river belt. Here the epi-

*See Cact. Succ. Journ. Amer. 30: 35, 1958.

phytic specimens in their lofty perches have many-branched, pendent, triangular stems often over 9 feet long, particularly in the dark interior of the woods. Only those plants growing on rocks or in the sunny tree-tops bore flowers and they were also of stouter, scandent or upright growth.

The original description of this species closely fitted these plants except that every specimen bore in each stem-areole 1 to 6 spines 2 to 3 mm. long, whereas the type was said to be spineless or with a few bristles. Of those plants seen by me, only old stems were spineless. The natives of El Copey assured me that no other cacti were to be found in this area, except for a few arborescent Opuntias (which I later saw) and a rare species of *Epiphyllum.*

After taking the cuttings out of my collecting bag later I noticed that the spine-clusters had been so loosely attached to the plants that nearly all had fallen off during transport. The statement that *W. tonduzii* is spineless is perhaps based on herbarium material from which the spines were lost during shipment.

The excessive lumbering in the upper Río Parrita valley, except for the river shores and a few last stands near El Copey, is converting the entire region between Santa María de Dota and El Copey into an ugly wasteland, and will certainly mean the eventual extermination of *W. tonduzii* in this area.

Eight months after collecting this species near El Copey and Santa María de Dota I came across it again. While hunting orchids in November, 1957, I went southwest through San José, Desamparádos, Aserrí, Tarbaca and San Ignacio de Acosta. The northern descent of the Aserrí Mountains, which are crossed by an excellent paved highway, are almost depleted of their forests; only the crests are capped with trees, whose epiphytes are typical of the 1800 to 2000 meter level: *Anthurium, Epidendrum exasperatum, E. difforme, Oncidium asparagoides, Scaphosepalus,* etc.

The southern descent, following the road, begins shortly before reaching the tiny settlement of Tarbaca; however, the cloud forest flora vanishes almost completely less than 100 meters below Tarbaca, where we descend to the still-forested bottom of the Río Jorco headwaters.

Although the temperature still remains rather cool, these southern slopes of the Aserrí are much drier than the northern ones. *Epidendrum exasperatum,* which requires high humidity, disappears at once, and in its place we find a semi-xerophytic species of *Lepanthes,* and the equally succulent orchid *Epidendrum schlechterianum.*

In proceeding a short distance along this forest belt, I found one specimen of *W. tonduzii* growing on an old tree some 200 meters downriver from Río Jorco after leaving Tarbaca, the only cactus I found here. I left the specimen where I found it, and time did not suffice to go further downriver toward Jorco and San Ignacio de Acosta.

Comparing climatic conditions, associated flora and the habitats of *W. tonduzii* at El Copey and Santa María de Dota, we can arrive at conclusions about the distribution of this species. Both Río Parrita and Río Jorco are tributaries of the Pacific-bound Río Pirrís. Separated widely by enormous mountain ranges (the Candelaria Mountains and an extension of the Talamanca range), they nevertheless originate on the same range at high elevations. In addition, the tributaries of the Río Colorado, Río Grande de Candelaria and Río Tabarcia also lead into the Río Pirrís. *W. tonduzii* does not cross over the high mountain chains toward the north or northeast, nor can it "jump" across the high elevation separating these tributaries of the Río Pirrís. The migration of this species must therefore have proceeded along the tributary valleys.

It seems likely that *W. tonduzii* will eventually be found along each of these tributaries, upriver towards an elevation of between 1500 and 2000 meters, that is, throughout the southern or southwestern slopes of the following ranges: Montañas de Puriscál, Montañas del Cedrál, Montañas de Aserrí, Montañas de Candelaria, Montañas de Bustamante, and several points of the Cordillera de Talamanca southwest of El Copey. Avoiding the wet, cold heights of the crest, it has no doubt never found access to the Meseta Centrál itself.

SPOTLIGHT ON ROUND ROBINS

It is a pleasure to report that while there is some fluctuation, Robin membership is increasing rather than decreasing. Following are the newest members: Mrs. Joseph Kres, San Antonio, Texas; Mrs. Albert Herman, East Weymouth, Massachusetts; Mrs. Maude A. Price, Hollidaysburg, Pennsylvania; Mr. Alva Kolb, Sr., Texas; Mrs. H. McIntoch, San Saba, Texas; Mrs. Anne O'Connell, Jennings, Missouri.

Among the Robins which still have vacancies are these: Epiphyllum Robin and Tree-Type Cactus Robin, each of which would like three more members; the Cactus and Succulent Decorator's Robin, which needs a number of members; the new International Robin No. 4, which is waiting to hear from our members, both from

here and abroad, who would like to participate in it. Do please write soon as I am sure the waiting members would appreciate it. Besides you will then be able to take part in the first round.

Suggestions for new Robins have come in for particular plants. One of these is a Stapeliad Robin which has Mildred Wellbaum for its first member. Another is an Opuntia Robin for which, in the last few months, I have had several inquiries. Let me repeat last month's invitation to those who wish the Echeveria Robin that it may recall it to mind if you are fond of these pretty plants. If any of these appeal to you why not send me a card that your name may be placed on its route list. If enough members write in it will become an active Robin and be sent out as soon as possible. I am happy to say the Euphorbia Robin No. 2 has almost completed a round with a full membership, as I write this, so if there should be others who did not get into this Robin and would like to be in one on Euphorbias, just let me know. We'll have a third Robin. How about the men getting into this one along with our women members?

Before I get into the Robin letters I would like to mention the many pictures and color slides that travel with them now and then. I wish there were some means of letting everyone see them for they surely record the successful flowering of cacti especially. However I can tell you about the flowers which bloom in the Robins.

From Texas, Billie Marie Anderson lists her many blossoms in the C. & S. Robin No. 6 and it does sound colorful. She writes, "A bunch of native Texas cacti have been blooming for some time—orange, near red, and several shades of yellow and an orchid Opuntia bloomed and is blooming." These are in addition to her potted plants among which is "my prize pet, 'Queen of the Night' and its beautiful 16″ to 18″ blooms." Aileen Campbell wrote, "I have an Opuntia from the southern part of the state (Colorado) and the pads are much larger than ours here. It proved to be a luscious shade of pink when it bloomed." Beverly Minson's new rock garden must have been lovely with a huge clump of New York cactus "established in the top place of honor." Can't you just see those big yellow flowers? Joyce Churchill, who has an interesting hobby collecting a cactus from those states which have native plants, mentions receiving a Pediocactus from Idaho which is supposed to have a yellow flower. Others she received had pink blossoms. Mildred Wellbaum wrote of her Opuntias, "I have basilaris which is rose, monacantha which is yellow with red backs, and then my O. electoclada which is a lovely rosebud-shaped blossom and rosy pink. Several new Opuntias I have are O. ipatiana, a beautiful red-bodied one, my new darling O. clavaroides—I'm afraid to breathe for fear it will rot—has to have shade and not too much water but very interesting looking, and O. verschaffeltii." Other bits of news from her letter include: "My Tephrocactus strobiliformis has a bunch of wool on one side and if it blooms I will be quite thrilled! Never saw a bloom. In fact, never heard of one either. My Eriocereus martinii has eight big blossoms so far and many more buds to come. Just transplanted it and a Hylocereus undatus this spring so they won't do much this year.

FIG. 100. (Left) *Cactus intortus* as a Christmas tree or an Aloe (right) can be made decorative

Put them in wash tubs and are they growing! I have my Wilcoxias in sand and gravel with Johnson's soil conditioner and fertilizer. Many are grafted, not because they won't grow on their roots but they branch and bloom so much better when grafted." Frances Anderson says, "The weather has been too cool for good flowering of Stapelias," and that seems to be true for a good many of the Robin members also. Irma Huch says, "If you have any large conch shells, they make very good planters. I have Ceropegia woodii in one and Rhipsalis in two and they love the shells." Julia Moore tells about wintering her cacti, which she says "are kept quite dry and cold from October 15th to April 15th. Maybe the experts wouldn't approve but I've lost five out of four hundred and four. I never water them inside, and outside I let nature take care of them."

The weather and its effect on plants is always a subject for mention in the Robins. Shirley Schrade wrote, "I noticed that with all the extra rain we've had this summer has not done my plants any harm. Guess during their growing season they can take lots of rain if they have good drainage." Elnora Haines remarks, "When I got home from Florida my daughter told me it had rained nearly every day since I was gone and my cactus had been under water several times. Well, I was just sick, with visions of everything rotting, but, to my surprise, the plants are so big and fat and full of buds." From Fleeter Michael this bit on weather: "It is very damp here in Alabama. We both have around 500 cactus and a good many succulents. We have them protected from a downpour but with a blowing rain they get too much water and we have a good many die." Fleeter is in the C. & S. Robin No. 5 which has made its first round this summer. She and her husband took a 2000 mile trip—a vacation and expedition combined, and among the many places she visited she spoke of Tempe, Arizona, Cactus Gardens, "we had been twice before but it is truly the cactus lovers dream come true." Ida Pruett, who lives in the garden-minded city of Houston, Texas says, "It is better for tropicals here on the Gulf Coast, but there are a lot of cactus growers too. Making dish gardens is my hobby and I give them to my garden clubs who auction them off. I use up all my surplus plants that way. We go to the Rio Grande Valley and Mexico at least once every year. I always stock up on Mexican pottery." Lloydene Dodd, who with her husband has 500 to 600 cacti, writes, "I think my favorites are the Paramount Hybrids which have bloomed all summer with such gorgeous colors." She added, "We have made trips into the canyons where we collected Mammillaria macdouglii, Coryphantha recurvata, Echinocereus pectinatus var. rigidissimus and E. triglochidiatus. We ran across a beautiful clump of the latter of 20 to 25 heads and managed to get 5 to 7 heads from it."

FIG. 101. The late Boyd L. Sloane used the rare *Euphorbia intisy* for a Christmas tree

Harry Barwick in the International Mammillaria Robin has a number of interesting things to say. Regarding Mammillaria microcarpa he says, "I grafted it as soon as it came and it has doubled in size, which you may not believe, but it is one of those exceptional grafts or lucky combinations where stock and scion are in the best of health, perfectly knit and no retarding of either part. This type of graft will put on speed. Got a microcarpa two years ago, and on its own roots has stood still but sent out two offshoots which also were slow. For grafting, my two favorite kinds of stock are Nyctocereus serpentinus and Hylocereus undatus. I sometimes use Selenicereus macdonaldae and Pereskia aculeata. Mam. plumosa is a fine example of where man can help nature along. Last year I put a one inch head on Nyctocereus serpentinus three fourths of an inch thick. By the end of the year it had fifteen heads. In 1935, just a novice at grafting, I used a 15" high and exceptionally thick and healthy plant of Hylocereus undatus, putting on a 1½" head of M. plumosa. At the end of the season it had well over 50 heads. Enough to make your eyes pop. One can not imagine the tremendous growing push of this stock. There

are not many stocks we can use in these latitudes and it is important to find the proper one. In 1956 I grafted a 1¼″ head of Echinopsis aurea on H. undatus. Today it is over 4″ wide and 6″ high. Quoting Harry Johnson, E. aurea gets to be the size of an orange. I don't mean our collections should be made up of barrel size cactus but just to see the ultimate growth in one's life of the different types we are interested in. Grafting isn't the answer to everything for some plants just won't take to grafting."

There has been quite some discussion on whether or not to feed cacti and what fertilizer. I think John Daily sums it up well for all the others whose good material I am unable to quote for lack of space. He said, "Why it took me so long to learn a simple thing I don't know, but—cacti must be fed! I started this year. Several plants I have had for five years have looked healthy but had no growth. This year they are all growing. It may be that with the healthy, well fed plants I may have the answer to the fungus problem. Have been using quite a bit of commercial dry cow manure in the potting mixture and manure water, made from the dry cow manure, for plants already potted. I have given the hardy bed the fertilizer treatment also and am expecting big things next year."

Also from John Daily's letter is a description of the trip he and Mrs. Daily took earlier in the year, part of which I have included. They went to South Fork, Colorado, making it headquarters for almost three weeks. His letter continues, "This is National Forest area and leased for grazing of cattle and sheep. For this latter reason it was necessary to go to almost inaccessible places to find clusters etc. Five thousand sheep in one flock will literally destroy every semblance of cactus and other vegetation as they move along. Our hunting was always above 8000 feet. There are still large clusters of Echinocereus triglochidiatus, E. coccineus and E. romeri to be found. We only photographed the large ones. They were all flowering, some just about through and others just starting depending on the altitude. The many varieties of E. romeri and coccineus will defy an amateur taxonomist. Some romeri had long, soft spines up to two and a half inches long. Pediocactus and E. viridiflorus were almost universally scattered. The Pediocactus however was only found on flat surfaces of the mountains. In only one place did we find the Peds. in large clusters, and at this particular place you literally could not walk without stepping on them. However fifty feet away from this small level spot you couldn't find anything. We noticed that Peds when just about covered with drifting dirt will give rise to new plants on each tubercle. I returned with specimens of these odd forms of growth."

It is always such a temptation to continue finding interesting excerpts to add to the report. However, all things must come to an end sometime and there is always the next report coming along. If you join a Robin, though, you will be able to read the whole of it and not bits and pieces. Wouldn't it be a good idea to write me? You will be glad you did.

(Mrs.) Gladys H. Panis
P.O. Box 705, Falmouth, Massachusetts

BOOK REVIEW

Les Euphorbes Malgaches Epineuses et Charnues du Jardin Botanique de Tsimbazaza (The Madagascan Spiny and Succulent Euphorbias at the Botanical Garden of Tsimbazaza), by E. Ursch and J. Leandri; in Mémoires de L'Institut Scientifique de Madagascar, Série B, Tome V, 109-185, 1954; 37 plates.

This work seems to have been overlooked by succulent enthusiasts, but as the most recent treatment of the little-known Euphorbias of Madagascar it should be in the hands of all interested in the genus. 62 taxa are discussed, but emphasis is placed on those cultivated at the Botanical Garden at Tananarive. Detailed descriptions are usually given only for new species and natural hybrids, and it is unfortunate that the work was not expanded into a comprehensive, descriptive monograph; earlier ones are expensive and out-dated.

These Euphorbias, which are but distantly related to the succulent species of southern Africa, are nearly all conspicuously leaved and shrubby. Only *E. milii* and several of its varieties, as well as *E. lophogona* and *E. leuconeura* to a lesser degree, are widely grown in this country, but a dozen more species have been introduced recently and many others seem most worthy of cultivation.

Presented here is the definitive (we hope) decision as to the proper name for the "Crown of Thorns". The earliest name is *E. milii*, whose type description was based on the miniature form later known as *E. bojeri*, here in synonomy under *E. milii* var. *milii*. The "Crown of Thorns" is called *E. milii* var. *splendens*. There are seven other varieties recognized, including var. *breonii* and var. *hislopii*, former species now in cultivation here. The other major group of horticultural interest is that of *E. lophogona* and its allies. It should be noted that one species treated here as hardly identifiable, *E. leuconeura*, has since (in the French journal "Cactus" 51:83-86, 1956) been determined to be the commonly grown species resembling *E. lophogona* but with inflorescences lacking a peduncle and with greenish white bracts.

The many fine full-page drawings are a great taxonomic aid and are the work of a Madagascan native for whom one of the new species, *E. razafinjohanii*, is justly named.

Myron Kimnach

METROPOLITAN CACTUS & SUCCULENT SOCIETY

A newly organized club holds its meetings the second Friday in each month at 7:30 p.m. in the Recreational Bldg. near Rosecrans in the Hawthorne District. All are welcome.

EUPHORBIAS FOR EXCHANGE

Mildred Wellbaum, Mulino, Oregon, would like to exchange Euphorbias. Correspondence is invited. Mrs. Wellbaum has promised us an article on why she likes Euphorbias and how she grows them.

PROPOSED AMENDMENT TO THE BY-LAWS OF THE CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

ARTICLE X

CONVENTIONS OF THE CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

1. *Time and Place.* Conventions may be held when authorized by the Executive Board of the Cactus and Succulent Society of America (hereinafter called the Executive Board). Usually this will be in accordance with the following plan:
   a. Conventions are held ordinarily in odd-numbered years, as 1951, 1953, 1955, 1957, etc.
   b. Conventions are scheduled for the summer months, usually the month of July.
   c. The place and time of each convention is chosen by the Executive Board. Insofar as practical, the choice is made upon recommendation of the Meeting of Delegates to the preceding convention and upon agreement with the Host Society (see below).
2. *Host Society.* Conventions are sponsored and arranged ordinarily by a Host Society, usually a local society affiliated with the Cactus and Succulent Society of America and located in or near the place where the Convention is to be held. Policy concerning conventions is determined by the Executive Board. Detail of arrangement for the Convention is the province of the Host Society, so long as the details are in harmony with the policies determined by the Executive Board.
3. *Executive Board Convention Committee.* This committee is appointed by the Executive Board. It shall consist of three or more ex-officio or elected members of the Executive Board. Its duties are as follows:
   a. Liaison between the Board and the Host Society and the Host Society Convention Committee.
   b. Interpretation of Executive Board policies concerning the Convention and application of policy to problems as they may arise.
   c. Final approval of the Convention program.
   d. Printing and mailing of the Convention Program and of information sheets. Printing and delivering to the General Convention Committee Treasury of books of tickets for registration, meals, tours, etc.
   e. Approval of the publicity of the Convention.
   f. Other duties delegated by the Executive Board and the President.
4. *Host Society Convention Committee.* This committee is appointed by the Host Society subject to the approval of the Executive Board. Its duties are as follows:
   a. Arrangement for the housing and staging of the Convention in accordance with the policies of the Executive Board.
   b. Arrangement for lodging and meals for those making advance payment and reservations. Collecting of the money and payment of the hotels, motels, restaurants, etc.
   c. Arrangement for registration of those attending the Convention and for collection of registration fees, which are paid to the Cactus and Succulent Society of America.
   d. Arrangement of the program for the Convention. The program is developed in consultation with the Executive Board Convention Committee which must give final approval.
   e. Arrangement for transportation for tours or field trips, together with the conduct of these trips. Collection of fees for transportation or other matters necessary to the trips.
   f. Handling of funds received for the expenses for items "a" to "e" above or for other items. At the end of the Convention all remaining funds are to be transferred to the Treasurer of the Cactus and Succulent Society of America, Inc. A representative of the Executive Board Convention Committee shall be appointed to work with the Convention Treasurer and to help him with registration at the Convention.

   The Host Society Convention Committee and its members are responsible to the Host Society (and its President), which in turn is responsible to the Executive Board of the Cactus and Succulent Society of America insofar as the Convention is concerned. The Host Society Convention Committee is composed of the following members appointed by the Host Society with the approval of the Executive Board:
   a. The Convention Chairman, who is chairman of the Committee.
   b. The First Vice-Chairman, who must be qualified and willing to become Convention Chairman in event first-appointed Chairman is unable to carry out his duties or fails to do so, as determined by the President of the Host Society and President of the Cactus and Succulent Society of America.
   c. The Second Vice-Chairman, appointed under the same circumstances as the First Vice-Chairman.
   d. The Convention Secretary.
   e. The Convention Treasurer.

   The Host Society may appoint other committees to help the Host Society Convention Committee.
5. *Convention Procedures.* The first session of the Convention is opened by the Convention Chairman. After the opening of the Convention and the address of welcome, the Convention Chairman introduces the President of the Cactus and Succulent Society of America, who is then in charge of the Convention. The President opens all meetings after the first one.
6. *Meeting of Delegates.* A meeting of the official delegates of the affiliate societies shall be held during the Convention. At this meeting the President of the Cactus and Succulent Society of America presides, and the Corresponding Secretary, or in his absence an appointee, records the proceedings. The Vice-President, the Recording Secretary, and the Treasurer of the Cactus and Succulent Society of America and the Convention Chairman are observers. The President may invite other ex-officio or elected members of the Executive Board as observers. Unless he is also a delegate, no observer may enter into the discussions or speak at the meeting of delegates unless the President requests him to do so.

   Delegates of the affiliated societies shall present written notice of selection by the societies they represent. These shall be received and checked by the Corresponding Secretary.

   a. To recommend to the Executive Board the choice of the Convention Host Society, the place, and the time for the next convention.
   b. To recommend to the Executive Board matters of policy in the conduct and arrangement of conventions.
   c. To recommend to the Executive Board procedures, methods, or policies of the Cactus and Succulent Society of America and the affiliated societies.
7. *Business Meetings.* There shall be no business meeting of the entire Convention, except for the election of the King and Queen. The recommendation of the Meeting of Delegates concerning the Host Society, place, and time of the next convention may be announced by the President unless an announcement is considered premature because of uncertainties or the necessity for negotiations.

FIG. 102. *Acanthocereus pentagonus* from Texas

Acanthocereus pentagonus

By MARVIN TOOLEY

For many years I had paid little attention to the "night blooming cereus" of south Texas primarily because of its vicious armament and because, like our common "prickly pear", Opuntia lindheimeri, it usually grows rampant and can be somewhat of a pest in areas where it grows wild or where it has escaped cultivation.

My interest was aroused in the species one night this spring when I saw a plant in bloom. The white flowers are over five inches in diameter and as beautiful as any in the cactus family —well worth staying awake to see. The flower begins to open late in the afternoon and closes as the sun rises in common with most of the other night blooming species.

A. pentagonus blooms from late spring throughout the summer, and buds, flowers and fruit may be found on the same plant by midsummer.

This cactus does not seem to be particular as to soil. It may be found growing wild in the sandy loam near San Benito, Texas, and it grows in yards in Corpus Christi in heavy black clay. It can take plenty of water if well drained, yet can stand long dry spells equally well. The plants in Corpus Christi have withstood a light frost without apparent harm, and could probably take a freeze as low as 28° in a protected area.

Specimens still may be found growing wild in the vicinity of San Benito, as far as I have been able to determine, there are very few left in that area. At one time the plant was supposed to have been very common in the Lower Rio Grande Valley, but as more and more of the land is being cleared for cultivation, cacti of all types are fast disappearing. I recently found several plants growing in the shade of mesquite trees and one specimen clambering over a tree to a height of about ten feet.

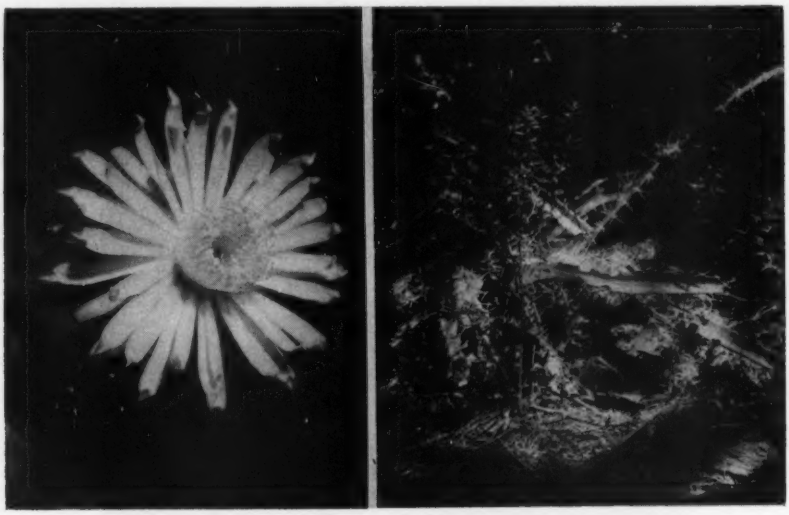


FIG. 103. *Acanthocereus pentagonus* growing under a mesquite near San Benito, Texas. In flower August 4

Being a very vigorous grower, A. pentagonus makes a good grafting stock, especially for Zygocactus and Epiphyllums. When used for grafting, the long spines should be clipped from the stem and then may be used to help hold the scion in place until a union has formed.

ECHINOCEREUS PAPILLOSUS

See illus. "Texas Cacti" pg. 85

Echinocereus papillosus, when flowering, is a worthy rival for the Echinopsis, in the beauty of its blossoms if not in their size. The petals are a light lemon yellow with a strong splotch of red at the base, and the flower averages over three inches in diameter.

This south Texas plant is rare in collections here, even though it is to be found growing wild in the area. Its present range seems to be limited to the brush country near San Diego and Freer. It is abundant on the low rolling hillsides among the mesquite, agarita, and ebony thickets, growing in association with Hamatocactus setispinus, Homalocephala texensis, and Echinocereus enneacanthus, for which it might be easily mistaken by the casual observer.

The buds begin to form around the middle of January, and the flowers burst into bloom about the time of the spring showers, usually the first week in April.

This cactus will take a light freeze, if dry. Given a light sandy loam, moderate waterings, and the protection of light shade, particularly during the hottest part of the day, they will reward the collector with abundant growth and a profusion of strikingly beautiful flowers.

It is now probable that my second book on cacti, titled CACTUS PERSONIFIED, will be ready for the trade before the Christmas Holidays roll around. The style of this book is considerably different and novel but I think it will be very welcome. The full page illustrations are done in caricature vein to mainly tickle the fancy of the general public. It is not exactly a funny book nor a strict garden book but a kind of "facts with laughs" book intended to arouse in-

terest in cacti among lay people. By it, it is hoped to recruit new members for the cactus hobby. The dyed-in-the-wool cactophiles know that the average person shudders at the mere mention of 'cactus' because it is not realized that these plants bear very beautiful flowers, are among the easiest to take care of, and are quite interesting in more ways than one. It is hoped CACTUS PERSONIFIED will fulfill this need. The cactus enthusiast, on the other hand, will derive cultural hints and other informative material from the text. The book is being published by Laurence Barcus of Terre Haute, Indiana. The probable cost will be Two Dollars, in order to make it available to everyone even of modest means. If everything goes well, I'm sure CACTUS PERSONIFIED will be ready for Christmas sale and distribution. For further details you can write to me in care of the Missouri Botanical Garden, St. Louis 10, Mo.

Helia Bravo describes a new species of Mammillaria from Guerrero, Mexico, in the Anales del Instituto de Biologia (28: 37-38, 1957). This new pincushion. *Mammillaria pitcayensis,* was collected by Eizi Matuda in the Barranca de Pitcaya, from when it gets its specific name. The species possesses an abundance of milky juice and is characterized by cylindrical shoots, very small tubercles and numerous hairy spines. The radials and centrals are similar, the former around 17 in an areole and the latter around 14 in number, somewhat dirty white yellow in color. The purple-red flowers appear in a crown at the tops of the stems. The plants are found on the rock walls of the barranca suspended like pipes.

Harry Hall discovered a very dwarf stapeliad in South West Africa in 1955, growing between slabs of white quartz. Edgar and Brian Lamb, noted for their Exotic Collection of nearly 4,000 species of succulents, describe this distinct entity in the September 1958 issue of The National Cactus and Succulent Journal as a new species, *Huernia hallii.* This pygmy Huernia is closely related to *H. namaquensis* but is distinguished from it by its smaller flowers, less deeply bifid outer corona, and different colored inner corona. Its green, glabrous stems are under two inches long. It is said to be a rather slow grower but exceedingly profuse bloomer.

In 1933 K. Steinecke crossed *Echeveria derenbergii* with *E. setosa* and produced the worthwhile hybrid *Echeveria* x *derosa,* noted for its freedom and long duration of flowering and the shortness of its inflorescences. A later generation seedling with taller inflorescences has now been given the cultivar name of 'Worfield Wonder' by Gordon Rowley to distinguish it from the original hybrid. Further information can be gleaned from the September 1958 number of The National Cactus and Succulent Journal.

In Cactaceas Y Succulentas Mexicanas (April-June 1958) Helia Bravo describes a new Wilcoxia from the State of Morelos, which was found on a cactus hunt in 1956 by Dudley Gold. She names it *Wilcoxia tomentosa* from the characteristic hairy stems. It somewhat resembles *W. viperina* but is distinguished by its more pubescent covering, more elevated and distant areoles, longer spines and the usual presence of a central. It also has a much longer flower and irregular ovoid scarlet berry.

In the same issue of Cactaceas Y Succulentas Mexicanas, Eizi Matuda describes a new Echeveria from the State of Hidalgo. He calls it *Echeveria tolimanense* from its habitat : the cliffs of Barrance de Toliman. Because its leaves are thick and rounded, it looks more like a Pachyphytum than the typical Echeveria. It is a stemless succulent with leaves forming a dense rosette from which issues a loosely panicled lateral inflorescence bearing orange yellow blossoms.

The Henry Shaw Cactus Society sponsors a gigantic cactus show each fall in the Floral Display House of the Missouri Botanical Garden. This past September a display of succulent orchids from the Garden's collection was exhibited for the first time. The average person thinks of orchids as being inhabitants of rain forests only, perched on trees and bathed by mists descending from the mountains. It may interest our readers to know that there are a number of orchids that can be rightly classed as succulents. Species of Maxillaria, Pleurothallis, Epidendrum, Oncidium and Cattleya can often be located on nude rock fully exposed to the sun. One will wonder how such orchids can maintain thick pseudobulbs and fleshy leaves in nearly rainless areas. A little investigation will reveal the plants growing in fissures and cracks of rock where a little humus is present, as well as moisture. *Cattleya elongata* is just one such plant. A recent article on this orchid in the October 1958 American Orchid Society Bulletin prompts me to bring this to your attention. The accompanying illustration show the orchid growing on exposed bare rock in company of bromeliads, cacti, grasses and lichens. Soon there will come a time when succulent orchids will become a regular addition to our collections of cacti and the other succulents.

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